

**IN THE CLAIMS:**

1. (previously amended) A method for evaporative leak detection of an automotive vehicle fuel system including a tank having vapor at a known pressure at a first point in time, the method comprising:

supplying from the tank fuel being combusted by the automotive vehicle;

measuring and recording a first temperature of the vapor at substantially the first point in time;

measuring and recording a second temperature and a measured pressure of the vapor at a second point in time;

computing a temperature-compensated pressure based on previously measured values;

and

comparing the temperature-compensated pressure with the measured pressure at a second point in time to detect a leak.

2. (previously amended) The method according to claim 1, wherein the temperature-compensated pressure is computed as a function of the known pressure at the first point in time and of the measured temperatures.

3. (previously amended) The method according to claim 2, wherein the function comprises:

$$P_c = P_1(2 - T_2/T_1)$$

where  $P_c$  is the temperature-compensated pressure,  $T_1$  is the first temperature at the first point in time and  $T_2$  is the second temperature at the second point in time.

Claims 4-16 (cancelled)

17. (previously amended) A method for evaporative leak detection in a fuel system of an automotive vehicle, the method comprising:

supplying with the fuel system fuel being combusted by the automotive vehicle;

measuring and recording a first temperature and a first vapor pressure in the fuel system at a first point in time;

measuring and recording a second temperature and a second vapor pressure in the fuel system at a second point in time;

compensating the first vapor pressure based on the first and second temperatures, thereby defining a temperature-compensated first vapor pressure; and

comparing the temperature-compensated first vapor pressure with the second vapor pressure to detect a leak in the fuel system between the first and second points in time.

18. (previously presented) A method of evaporative leak detection for a fuel system of a vehicle including an internal combustion engine and a fuel tank, the fuel system having fuel vapor at a known pressure at a first point in time, the method comprising:

combusting in the internal combustion engine fuel from the fuel tank;

measuring at substantially the first point in time a first temperature of the fuel vapor;

measuring at a second point in time a second temperature of the fuel vapor and a measured pressure of the fuel vapor;

computing a temperature-compensated pressure based on:

the known pressure of the fuel vapor at the first point in time

the first temperature of the fuel vapor, and

the second temperature of the fuel vapor; and

comparing the temperature-compensated pressure with the measured pressure at the second point in time to detect a leak.

19. (previously presented) The method according to claim 18, wherein the computing the temperature-compensated pressure comprises:

$$P_c = P_1(2 - T_2/T_1)$$

where  $P_c$  is the temperature compensated pressure,  $T_1$  is the first temperature of the fuel vapor at the first point in time and  $T_2$  is the second temperature of the fuel vapor at the second point in time.

20. (previously presented) The method according to claim 18, further comprising:  
recording at substantially the first point in time a first temperature of the fuel vapor; and  
recording at a second point in time a second temperature of the fuel vapor and a measured pressure of the fuel vapor.
21. (previously presented) The method according to claim 18, wherein the second point in time follows the first point in time.
22. (previously presented) The method according to claim 21, wherein the combusting occurs separately from the measuring.
23. (previously presented) A method for evaporative leak detection for a fuel system of including an engine and a fuel tank, the method comprising:  
supplying fuel from the fuel tank to the engine;  
measuring and recording a first temperature and a first vapor pressure in the fuel system at a first point in time;  
measuring and recording a second temperature and a second vapor pressure in the fuel system at a second point in time;  
compensating the first vapor pressure based on the first and second temperatures, thereby defining a temperature-compensated first vapor pressure; and  
comparing the temperature-compensated first vapor pressure with the second vapor pressure to detect a leak in the fuel system between the first and second points in time.
24. (previously presented) The method according to claim 23, further comprising:  
recording the first temperature and the first vapor pressure in the fuel system at the first point in time; and  
recording the second temperature and the second vapor pressure in the fuel system at the second point in time.